CLAIMS

1. A rectangular response optical filter for partitioning a limited spectral interval in a light flux with wide spectrum comprising:

- an input optical fibre having one end,
- a grating-reflector assembly in Littman-Metcalf configuration,
- a converging collimation optical system at whose focal point is located the end of the input fibre,
- a converging focusing optical system placed between the grating and the reflector,
- at least one reflector placed in the focal plane of the focusing optical system which has a dimension limited in the dispersion plane, whereas the position and the limited dimension of the reflector in the dispersion plane determine the partitioned spectral interval,

characterised in that it comprises a polarisation separator placed between the input fibre and the grating and generating two elementary light beams parallel and polarised orthogonally with respect to one another, whereas a plate $\lambda/2$ is placed on one of the elementary beams in order to generate two elementary parallel beams polarised in a direction perpendicular to the lines of the grating, whereas the reflector of Littman-Metcalf configuration sends back each elementary beam onto the path and in opposite direction in relation to one another.

2. An optical filter according to claim 1, characterised in that the input optical fibre is a monomode fibre.

3. An optical filter according to one of the claims 1 and 2, characterised in that the light flux generated with limited spectrum is collected in an output optical fibre distinct from the input fibre and of the same type as the latter.

4. An optical filter according to claim 3, characterised in that it comprises several optical output fibres, each of them being connected to a reflector, these reflectors being positioned in the focal plane of the focusing optical system and having a small dimension in the dispersion plane and determining a particular spectral interval.

5. An optical filter according to one of the claims 1 and 2, characterised in that the light flux generated with limited spectrum is collected by the input fibre and in that said fibre carries an optical circulator enabling to separate the output flux from the incoming flux without any energy loss.

SUB Q1

6. An optical filter according to one of th claims 1 to 5, characterised in that it comprises a folding reflector doubling the number of passages of the light beam on the grating.

7. An optical filter according to one of the claims 1 to 6, characterised in that the reflector of Littman-Metcalf configuration is a planar mirror connected to a bi-prism.

8. An optical filter according to one of the claims 1 to 6, characterised in that the reflector of Littman-Metcalf configuration is a truncated dihedron.

Add Q2